

REMARKS

This amendment is submitted in response to the Examiner's requirement for restriction.

Applicants provisionally elect to prosecute the claims of Group I, that is claims 1 through 5, that is the claims of Group I. Applicants make the election with traverse.

Applicants call to the Examiner's attention US Patents 6,110,603 and 6,506,226. These patents are equivalent to DE 198 45 376 A1, which the Examiner has cited to support the position that Applicants' present composition claims are not patentably distinguishable over the disclosure in DE 198 45 376 A1. In the Examiner's opinion since there is no common technical feature linking composition claims 1 through 5 and method of preparing the composition claims 6 through 12, unity of invention as required by the PCT Rule 13 is not present in this application and restriction between the composition claims and method claims is proper.

Applicants respectfully traverse the requirement for restriction. In order to focus on why there is unity of invention among all of the claims in this application, both composition claims and method claims, Applicants have amended both independent composition claim 1 and independent method claim 5 to make it clear that the hard metal substrate bodies of the present invention are two-phase hard metal substrate bodies. Antecedent basis for this amendment may be found in the specification on page 4, line 17.

The Examiner refers to PCT Rules 13.1 and 13.2 relating to unity of invention which state that with respect to two

invention (here a hard-metal substrate body and a method) there must be a common technical relationship that is present in one or more similar or corresponding features.

In this case the correspondence between claims 1 and 6 is that in claim 6 there is a method of making a hard-metal substrate body according to one of claims 1 to 5, that is a hard-metal body that has the features of claim 1. This substrate body has a WC hard-material phase and a binder content of 3 to 25 percent by mass, that is there are only two phases. The binder phase has in addition to the binder metals Fe, CO, and/or Ni up to 15% by weight of dissolved doping agent from the group comprising Al, CR, V, Nb, Ta, Ti, Zr, and Hf, the total percentage of all doping agents in the hard metal body normally being limited to at most 4% by weight. In addition the portion of a cubic phase in the hard metal is limited to 4% by volume, that is that additional carbide or nitride is only dissolved, that is as a solid solution in the binder alloy. In this hard metal this existing quantity is never exceeded as otherwise there would be a third phase. Since these features, which relate to both the two-phase hard-metal substrate body according to claim 1 and to the method of preparing the two-phase hard-metal substrate body, in claim 6, wghich is dependent upon claim 1, there is a common technical feature linking claims 1 and 6 and the claims dependent on either. The sintering process described in the instant application is exactly related to the composition of the hard-metal body according to claim 1, only a 0.5 to 1.0 μm thick surface zone being separated out. This surface

zone serves the function to give the subsequent precipitated coating of hard material better adherence on the substrate body. The existing surface zone is necessary to make the cutting body but has no actual function during its use which takes place only after coating (see the object on page 4, last paragraph of the English translation of the application).

This common technical feature, namely, a two-phase hard metal substrate body is not found in German 198 45 376 or its US equivalents, cited above. The reference describes on the contrary a three-phase hard-metal body comprised of WC, a homogenous binder metal alloy comprises of Co, Ni, and/or Fe as well as carbide and nitride additives as a bulk layer. The total amount of the additives of the carbide, nitride, carbonitride, and/or oxycarbonitride of at least one of the elements of the IVa, VA, or VIa groups of the periodic table greatly exceeds the portion dissolvable in the binder phase, in order to make free mixed carbide or mixed nitride as a structural part.

The sintering process described in DE '376 is critically dependent on the large amount of mixed carbide or mixed nitride and the like and produces unlike the method of the instant invention a very thick surface zone that is 17 μm to 830 μm thick (which is obtained when one adds either the smallest or the maximum limits of the individual surface regions according to the claim). The surface zone according to DE '376 serves to impart to the cutting insert without any further coating a high resistance to wear and good cutting properties (see the object in DE '376 at column 2,

lines 10 to 15 and the object in US 6,110,603 column 2, lines 40 to 60 where the use of the (uncoated) cutting insert is evaluated as a cutting insert).

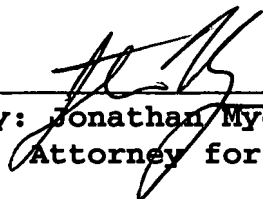
The special selection of the starting mixture, which inherently leads to a three-phase structure, and the corresponding process produces a thick surface region that is used "instead of an additional coating" for use as a cutting tool.

Thus a fair comparison of the method of DE '376 and that of the instant invention cannot ignore the composition of the starting mixture and the significant difference between the compositions of the reference and the compositions presently claimed. Since Applicants' claimed composition is sharply distinguishable from the composition disclosed in DE '376, the Examiner has not established a sufficient basis to question the common technical feature that links the Applicants' composition and method claims and thus the unity of invention of all claims now presented.

In addition it should be indicated that the unity of invention of the instant application was not questioned in the European Patent office. Here EP 1,511,870 was issued.

An action "on the merits" is awaited.

Respectfully submitted,
K.F. Ross P.C.


By: Jonathan Myers, 26,963
Attorney for Applicant

26 July 2007
5676 Riverdale Avenue Box 900
Bronx, NY 10471-0900
Cust. No.: 535
Tel: 718 884-6600
Fax: 718 601-1099
Email: email@kfrpc.com

Enclosure:
PTO 1449

23091

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**LIST OF PATENTS
AND PUBLICATIONS**

APPLICANT

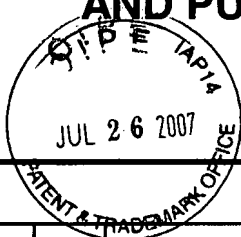
Dieter KASSEL et al

FILING DATE

2 June 2005

GROUP

1742

**U.S. PATENT DOCUMENTS**

EX. INIT		DOCUMENT NO. Cntry code - No.	DATE MM-YYYY	NAME	CLASS	SUB-CLASS	FILING DATE IF APPROPRIATE
	AA	US-6506226	01-2003	CHEN et al			
	BB	US-6110603	08-2000	CHEN et al			
	CC	US-					
	DD	US-					
	EE	US-					
	FF	US-					
	GG	US-					
	HH	US-					

FOREIGN PATENT DOCUMENTS

		DOCUMENT NO. Cntry Code - No.	DATE MM-YYYY	COUNTRY	NAME	CLASS	TRANSL.	
							YES	NO
	AI							
	AJ							
	AK							
	AL							
	AM							
	AN							
	AO							
	AP							
	AR							

OTHER ART (Including Author, Title, Date, Pertinent Pages, Etc.)

	AS	
	AT	
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EXAMINER
Zhu, W

DATE CONSIDERED

EXAMINER: Initial if Reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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K. F. Ross P.C.
Customer Number 535
5683 Riverdale Ave. Box 900
Bronx (Riverdale), NY 10471
(718) 884-6600